

# Incremental Encoders

<b>Miniature Magnetic</b>	<b>2430 / 2440 (Shaft / Hollow shaft)</b>	<b>RS422</b>
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Thanks to their non-contact magnetic scanning technology the miniature-format encoders 2430 and 2440 guarantee exceptional ruggedness – and this with a resolution of up to 256 pulses per revolution.

As a result of their compact outer diameter of only 24 mm, they are ideal for use where installation space is restricted.



Incremental Encoders

High rotational speed	Temperature range	Shock / vibration resistant	Short-circuit proof	Reverse polarity protection	Magnetic sensor technology

### Magnetically robust

- The non-contact magnetic technology prevents wear and guarantees a long service life
- Multiple clamping affords high strain relief to the cable outlet, ensuring longer life
- Wide temperature range from -20°C up to +85°C
- Flexible connection possibilities: can be supplied with radial or axial cable outlet

### Compact power

- Resolution up to 256 ppr
- Shaft and hollow shaft version

<b>Order code</b> <b>Shaft version</b>	<b>8.2430</b> Type	. <u>X</u> <u>X</u> <u>6</u> <u>X</u> . <u>XXXX</u> a b c d e	If for each parameter of an encoder the <u>underlined preferred option</u> is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.	
<b>a</b> Flange <u>1 = ø 24 mm [0.94"]</u> 3 = ø 28 mm [1.10"] 2 = ø 30 mm [1.18"]	<b>c</b> Output circuit / Power supply <u>6 = RS422 (with inverted signal) / 5 V DC</u>	<b>d</b> Type of connection 1 = axial cable, 2 m [6.56'] PVC <u>2 = radial cable, 2 m [6.56'] PVC</u>	<b>e</b> Pulse rate 1 ... 128 (factory programmable) <u>256</u> (e.g. 128 pulses => 0128) Other pulse rates on request	
<b>b</b> Shaft (ø x L) 1 = ø 4 x 10 mm [0.16 x 0.39"] 3 = ø 5 x 10 mm [0.20 x 0.39"], with flat <u>2 = ø 6 x 10 mm [0.24 x 0.39"]</u>				

<b>Order code</b> <b>Hollow shaft</b>	<b>8.2440</b> Type	. <u>1</u> <u>X</u> <u>6</u> <u>X</u> . <u>XXXX</u> a b c d e	If for each parameter of an encoder the <u>underlined preferred option</u> is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.	
<b>a</b> Flange <u>1 = ø 24 mm [0.94"]</u>	<b>c</b> Output circuit / Power supply <u>6 = RS422 (with inverted signal) / 5 V DC</u>	<b>d</b> Type of connection 1 = axial cable, 2 m [6.56'] PVC <u>2 = radial cable, 2 m [6.56'] PVC</u>	<b>e</b> Pulse rate 1 ... 128 (factory programmable) <u>256</u> (e.g. 128 pulses => 0128) Other pulse rates on request	
<b>b</b> Blind hollow shaft insertion depth max. 14 mm [0.55"] 1 = ø 4 mm [0.16"] <u>2 = ø 6 mm [0.24"]</u>				

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<b>Mounting accessory for shaft encoders</b>		Order-No.
<b>Coupling</b>	Bellows coupling ø 15 mm [0.59"] for shaft 4 mm [0.16"]	<b>8.0000.1201.0404</b>

Further accessories can be found in the accessories section or in the accessories area of our website.  
Additional connectors can be found in the connection technology section or in the connection technology area of our website.

## Technical data

Mechanical characteristics		
<b>Speed</b>		max. 12.000 min <sup>-1</sup>
<b>Moment of inertia</b>		approx. 0.1 x 10 <sup>-6</sup> kgm <sup>2</sup>
<b>Starting torque - at 20°C [68°F]</b>		< 0.01 Nm
<b>Shaft load capacity</b>	radial	10 N
	axial	20 N
<b>Weight</b>		approx. 0.06 kg [2.11 oz]
<b>Protection acc. to EN 60529</b>	housing side	IP65 (IP67 on request)
	flange side	IP50 (IP67 on request)
<b>Working temperature range</b>		-20°C ... +85°C [-4°F ... +185°F]
<b>Materials</b>	shaft / hollow shaft	stainless steel
	clamping flange	MS58
<b>Shock resistance acc. to EN 60068-2-27</b>		1000 m/s <sup>2</sup> , 6 ms
<b>Vibration resistance acc. to EN 60068-2-6</b>		100 m/s <sup>2</sup> , 55 ... 2000 Hz

Electrical characteristics		
<b>Output circuit</b>		RS422 (TTL-compatible)
<b>Power supply</b>		5 V DC ±5%
<b>Power consumption with inverted signal (no load)</b>		typ. 40 mA / max. 90 mA
<b>Permissible load/channel</b>		max. ±20 mA
<b>Pulse frequency</b>		max. 300 kHz
<b>Signal level</b>	HIGH	min. 2.5 V
	LOW	max. 0.5 V
<b>Rising edge time t<sub>r</sub></b>		max. 200 ns
<b>Falling edge time t<sub>f</sub></b>		max. 200 ns
<b>Min. flange distance</b>		0.5 µs <sup>1)</sup>
<b>Short circuit proof outputs<sup>2)</sup></b>		yes <sup>3)</sup>
<b>Reverse polarity protection of the power supply</b>		no
<b>CE compliant acc. to</b>		EMC guideline 2004/108/EC
<b>RoHS compliant acc. to</b>		guideline 2002/95/EC

## Terminal assignment

Output circuit	Type of connection	Cable (isolate unused wires individually before initial start-up)									
6 with inv. signal	1, 2	Signal:	0 V	+V	A	$\bar{A}$	B	$\bar{B}$	0	$\bar{0}$	
		Cable colour:	WH	BN	GN	YE	GY	PK	BU	RD	

- +V: Encoder power supply +V DC
- 0 V: Encoder power supply ground GND (0 V)
- A,  $\bar{A}$ : Incremental output channel A
- B,  $\bar{B}$ : Incremental output channel B
- 0,  $\bar{0}$ : Reference signal

1) For max. speed use a counter with input frequency of min. 500 kHz  
2) If supply voltage correctly applied  
3) Only one channel allowed to be shorted-out:  
If +V = 5 V DC short circuit to channel, 0 V, or +V is permitted.

# Incremental Encoders

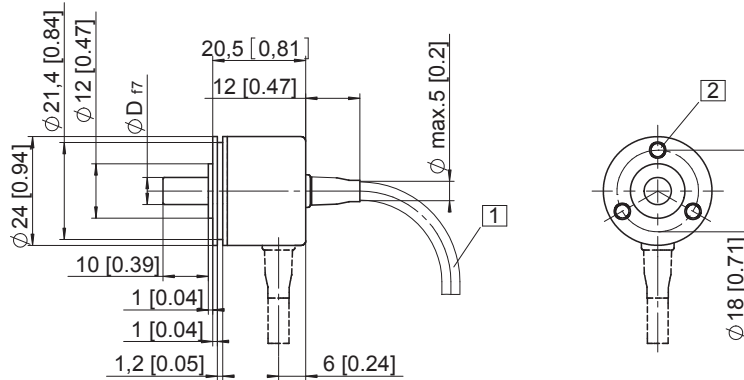
<b>Miniature Magnetic</b>	<b>2430 / 2440 (Shaft / Hollow shaft)</b>	<b>RS422</b>
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## Dimensions shaft version

Dimensions in mm [inch]

### Flange type 1, $\varnothing$ 24 [0.94]

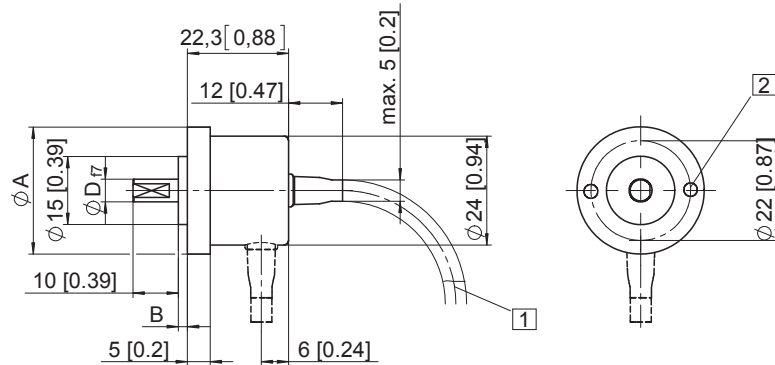
- 1 min R50 [1.97]
- 2 3 x M3, 4 [0.16] deep



### Flange type 2, $\varnothing$ 30 [1.18]

### Flange type 3, $\varnothing$ 28 [1.10]

- 1 min R50 [1.97]
- 2 2 x M3, 4 [0.16] deep



Flange type	A	B
2	$\varnothing$ 30 [1.18]	3 [0.12]
3	$\varnothing$ 28 [1.10]	2 [0.08]

## Dimensions hollow shaft version

Dimensions in mm [inch]

### Flange type 1, $\varnothing$ 24 [0.94]

- 1 4 x M3 DIN 915 - SW1.5

